

The Neotropical Chrysidid Genus *Adelphe* Mocsáry Revisited (Hymenoptera: Chrysididae: Amiseginae)

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Abstract.—The chrysidid genus *Adelphe* is reviewed. The species *Nesogyne taino* Krombein is moved into *Adelphe* (**new combination**) and *Nesogyne* Krombein is synonymized herein as a junior synonym of *Adelphe*. Thirteen **new species** are described, namely *acuta* (Dominican Republic), *azurea* (Costa Rica, Panama), *gibba* (Ecuador), *glabra* (French Guiana), *guayanensis* (French Guiana, Guyana), *hyalophora* (Puerto Rico), *intermedia* (Costa Rica, Panama), *leuropos* (Ecuador, Peru), *lobata* (Ecuador, Brazil), *lyra* (Venezuela), *paracubana* (Puerto Rico, Dominican Republic), *polita* (Bolivia) and *unidens* (Costa Rica). All of these species are based on males, or males and females, with the exception of *lyra*, which is known only from females. In addition, a key to the species is provided.

The genus *Adelphe* is among the more primitive members of the chrysidid subfamily Amiseginae (Kimsey and Bohart 1991). The subfamily was reviewed by Kimsey and Bohart (1991) who also provided keys to genera. This is the most speciose genus of Amiseginae, with 40 species including those described below. *Adelphe* was most recently revised by Kimsey (1986), with later additions of species by Kimsey (1993). There are undoubtedly additional undescribed species, particularly in South America. The genus is primarily Neotropical, with only one species, *anisomorphae* Krombein, 1957, occurring in North America. This is the only amisegine genus found in the Greater and Lesser Antilles.

Adelphe species are characterized by a mixture of derived and primitive features. The most distinctive derived features are the peculiar, flattened male mandible and the well-developed transverse pronotal carina. Configuration of the male mandible is a trait only otherwise seen in the South African genus *Anachrysis* and South American *Anadelphe*. The transverse pronotal carina extends across the anterior margin

of the pronotal disk and wraps laterally, ending at the pronotal lobe. This feature is not found in any other chrysidid genera. Primitive features include the extensively sculptured propodeum and mesopleuron, the presence of a scrobal sulcus and omaulus, presence of ocular setulae, and fully developed wings in both sexes, with one exception. Only the species *Nesogyne taino* Krombein, which is moved into *Adelphe* herein (**new combination**), is known to have brachypterous females. However, females are unknown for some species. With the exception of the reduced wings, *Nesogyne* shares all of the diagnostic features of *Adelphe*. Thus *Nesogyne* is made a junior synonym of *Adelphe* herein (**new synonymy**). Brachyptery also occurs in two species of *Amisega*, the North American *bella* (Krombein) and the Chilean *chilensis* Kimsey. Among the American amisegine genera only *Adelphe* has a laterally angulate or dentate propodeum. Other diagnostic characters include the well-developed occipital carina and the presence of an elevated metanotal disk.

Sexual dimorphism occurs in *Adelphe* as it does in most other amisegine genera.

Males have broad, foliaceous mandibles and an elongate, slender flagellum. Female mandibles are slender, edentate and are otherwise unmodified, and the flagellum is short and broad; the basal articles may be strikingly pale in females of a few species, such as *paradoxa* (Kieffer). Fortunately, in some species the sexes share enough features in modifications of the propodeum, eyes and mesopleuron that they can be associated.

The biology of *Adelphe* is poorly known. Members of the genus are thought to be phasmid egg parasites, but to date only one host, *Anisomorpha ferruginea* (Beauv.) (Phasmatidae), is known, and that is for the North American species, *anisomorphae* (Krombein 1957). Males are more commonly collected than females. This is probably because males spend more time flying and perching on vegetation above the ground. Females may spend the majority of their time on the ground and in leaf litter looking for host eggs. The most effective methods for collecting these wasps are yellow bowls, flight intercept traps (FIT) and Malaise traps.

To facilitate identification and the recognition of new species, a key to species based on males is given below. Because females are known for only about one-quarter of the species they are not included in the key.

MATERIALS AND METHODS

This study was made possible by loans of specimens from the following institutions and individuals: Canadian National Insect Collection, Agriculture Canada, Ottawa, Ontario (CNC) (J. Huber, L. Masner); Natural History Museum of Los Angeles, Los Angeles (LACM) (W. Xie), Museo de

Insectos, Universidad de Costa Rica, San Jose (MUCR) (P. Hanson) and the Bohart Museum of Entomology, University of California, Davis (BME) (S. L. Heydon). Types are deposited in the museums indicated in the type series by the museum acronym given in parentheses.

A number of morphological features are used in the key and descriptions below that require further description. These are shown in Fig. 1. The scapal basin is the area immediately above the antennal sockets, which is often concave and cross-ridged. Many measurements are made using the greatest side to side diameter of the midocellus (MOD) (Fig. 1A). The flagellomeres are numbered using Roman numerals starting with the flagellomere closest to the pedicel. Flagellomere proportions are measured using the greatest breadth and length of each article (Fig. 1A). The postocular distance is measured in dorsal view and is the area between the posterior eye margin and the outer margin of the occipital carina on the side of the head (Fig. 1B). The scrobal sulcus is measured from the anterior margin of the sulcus to the scrobe, or prior to the scrobe if the sulcus abruptly narrows, in which case the length is measured to the point of constriction (Fig. 1D). The greatest width of the sulcus is used in the measurement. Finally, the metanotum has an elevated medial disk, which has different dimensions in different species (Fig. 1E). The greatest width is measured relative to the length along the midline. A rough estimate of punctation is given using the puncture diameter (PD) on the structure in question to measure the average distance between punctures. These features need to be measured and not determined by "eye".

KEY TO MALE ADELPHE

1	Mandible with one apical tooth (Figs 4, 7, 13)	2
–	Mandible with two apical teeth (as in Fig. 3)	5

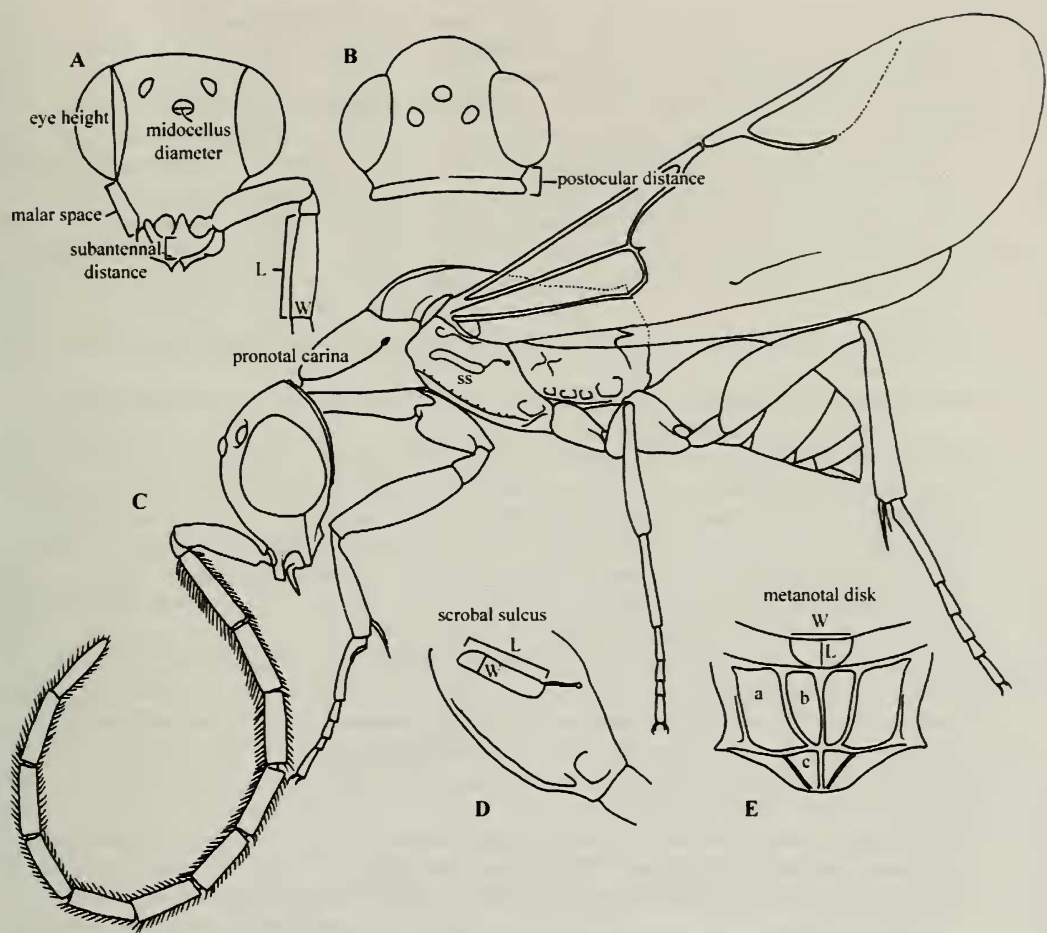


Fig. 1. *Adelpho* structural features, L = length, W = width. A. Front view of face. B. Dorsal view of head. C. Side view of body, ss = scrobal sulcus. D. Lateral view of mesopleuron. E. Dorsal view of propodeum, a. dorsolateral enclosure, b. dorsomedial enclosure, c. posteromedial enclosure.

- 2 Scapal basin smooth without cross-ridging (Fig. 7); scrobal sulcus more than 8× as long as broad; eye height 1.9–2.0× as long as malar space length in side view; Puerto Rico *hyalophora* Kimsey, **new species**
- Scapal basin extensively cross-ridged (as in Figs 4, 13); scrobal sulcus less than 8× as long as broad; eye height less than 1.8× as long as malar space length in side view 3
- 3 Face long, narrow, margins below eyes nearly parallel-sided medially (Fig. 4); head in dorsal view breadth 1.3× length (Fig. 25); Ecuador *gibba* Kimsey, **new species**
- Face broad, margins below eyes strongly converging below (as in Fig. 13); head in dorsal view breadth 1.5× or more length 4
- 4 Subantennal distance 1 MOD long; flagellomere I 2.9–3.0× as long as broad; eye height more than 1.5× malar space length in side view; Brazil, Ecuador . . . *paradoxa* (Kieffer)
- Subantennal distance more than 1 MOD long; flagellomere I 2.5× as long as broad; eye height 1.5× malar space length in side view; Costa Rica *unidens* Kimsey, **new species**
- 5 Scapal basin cross-ridged or vertically rugose (as in Figs 6, 8, 10) 6
- Scapal basin smooth, without cross-ridging (as in Figs 3, 5, 9, 11, 12) 17
- 6 Scrobal sulcus absent; body with extensive decumbent silvery pubescence; Dominican Republic *argentea* Kimsey

-	Scrobal sulcus well-developed; body without decumbent silvery setae	7
7	Scrobal sulcus more than 6.0× as long as broad	8
-	Scrobal sulcus less than 5.5× as long as broad	9
8	Head posteriorly with deep pit on either side of midline between occipital and hypostomal carinae; propodeum without lateral tooth or angle; thorax red; pronotum without lateral carina; Puerto Rico	<i>masneri</i> Kimsey
-	Head posteriorly without pit on either side of midline between occipital and hypostomal carinae; propodeum with lateral tooth or angle; thorax black; pronotum with lateral carina; Brazil	<i>cylindrica</i> Kimsey
9	Flagellomere I 3.0× or less as long as broad; flagellomere II twice as long as broad or less	10
-	Flagellomere I 3.4× or more as long as broad; flagellomere II more than twice as long as broad	11
10	Malar space 4 MOD long in front view; eye height less than twice as long as malar space length in lateral view; Mexico	<i>mexicana</i> Mocsáry
-	Malar space less than 3 MOD long in front view; eye height twice as long as malar space length in lateral view; Canada, USA	<i>anisomorphae</i> Krombein
11	Flagellomere I more than 4× as long as broad; scrobal sulcus 3.5× as long as broad; Mexico	<i>laevis</i> Kimsey
-	Flagellomere I less than 4× as long as broad; scrobal sulcus 4–5× as long as broad	12
12	Pronotal carina obsolescent laterally; Panama	<i>confusa</i> Kimsey
-	Pronotal carina well-developed laterally	13
13	Scrobal sulcus 5× as long as broad; flagellomere I 4× as long as broad; flagellomere II 3× as long as broad; Costa Rica	<i>limonae</i> Kimsey
-	Scrobal sulcus 4.5× as long as broad or shorter; flagellomere I 3.5× as long as broad or shorter; flagellomere II less than 3× as long as broad	14
14	Eye height less than twice malar space length in side view	15
-	Eye height twice malar space length in side view	16
15	Subantennal distance less than 1.5 MOD long; Panama	<i>robusta</i> Kimsey
-	Subantennal distance more than 1.5MOD long; Costa Rica	<i>intermedia</i> Kimsey
16	Subantennal distance 1 MOD long; malar space 2.5 MOD long in front view; French Guiana, Guyana	<i>guayanensis</i> Kimsey, new species
-	Subantennal distance 2 MOD long; malar space 3 MOD long in front view Ecuador	<i>lobata</i> Kimsey, new species
17	Scrobal sulcus 3.0–4.5× as long as broad	18
-	Scrobal sulcus 5× as long as broad or longer	28
18	Flagellomere I less than 3.6× as long as broad	19
-	Flagellomere I 4× or more as long as broad	23
19	Malar space 4 MOD long in front view; eye height 1.0–1.5× malar space length in side view	20
-	Malar space 3 MOD long in front view; eye height 1.9–2.5× malar space length in side view	21
20	Flagellomere I 3.5× as long as broad; flagellomere II more than 2.5× as long as broad; Dominican Republic	<i>dominicana</i> Kimsey
-	Flagellomere I 2.0–2.2× as long as broad; flagellomere II less than twice as long as broad; Ecuador, Colombia.	<i>longifacies</i> Kimsey
21	Eye with minute ocular setulae or setulae lacking; scrobal sulcus 3.5× or less as long as broad; French Guiana	<i>glabra</i> Kimsey, new species
-	Eye with ocular setulae 0.3–0.7 MOD long; scrobal sulcus 3.8–4.0× as long as broad	22
22	Postocular distance short, about 1 MOD wide in dorsal view; eye height more than twice malar space length in side view; Ecuador, Peru	<i>leuropos</i> Kimsey, new species
-	Postocular distance long, 2 MOD wide in dorsal view; eye height less than twice malar space length in side view; Costa Rica	<i>hansoni</i> Kimsey

23	Scrobal sulcus 3.0–3.5× as long as broad	24
–	Scrobal sulcus 4.0–4.5× as long as broad	26
24	Eye height 1.0–1.5× as long as malar space length in side view; malar space 3.5–3.8 MOD long in front view; postocular distance more than 1.5 MOD wide in dorsal view Venezuela	<i>meridae</i> Kimsey
–	Eye height 2–3× malar space length in side view; malar space 2.5–3.0 MOD long in front view; postocular distance 1.0–1.5 MOD wide in dorsal view	25
25	Subantennal distance 1 MOD long; malar space 2.5 MOD long in front view; eye height twice malar space length in side view; Brazil.	<i>metallica</i> (Kieffer)
–	Subantennal distance 1.5 MOD long; malar space 3 MOD long in front view; eye height 2.6× malar space length in side view; Brazil	<i>flavipes</i> (Ducke)
26	Eye height twice malar space length in side view; subantennal distance 1 MOD long; malar space 3 MOD long in front view; Costa Rica	<i>nitida</i> Kimsey
–	Eye height less than twice malar space length in side view; subantennal distance more than 1.4 MOD long; malar space less than 3 MOD long	27
27	Flagellomere II 2.5× as long as broad; subantennal distance 1.7 MOD long; propodeal medial enclosures smooth; Costa Rica	<i>paralaevis</i> Kimsey, new species
–	Flagellomere II more than 3× as long as broad; subantennal distance 1.5 MOD long; propodeal medial enclosures coarsely rugose or cross-ridged; Costa Rica	<i>azurea</i> Kimsey, new species
28	Scrobal sulcus 10× as long as broad	29
–	Scrobal sulcus 5–8× as long as broad	30
29	Subantennal distance more than 1.5 MOD long; eye height more than 2.6× malar space length in lateral view; West Indies	<i>nesos</i> Kimsey
–	Subantennal distance less than 1.5 MOD long; eye height twice malar space length in lateral view; Dominican Republic	<i>minuta</i> Kimsey
30	Flagellomere I 3× or less as long as broad; flagellomere II less than twice as long as broad; Brazil	<i>calvata</i> Kimsey
–	Flagellomere I 3–5× as long as broad; flagellomere II more than twice as long as broad	31
31	Flagellomere I 3.0–3.5× as long as broad; flagellomere II 2.8–4.0× as long as broad	32
–	Flagellomere I 4–5× as long as broad; flagellomere II 2.0–2.5× as long as broad	36
32	Scrobal sulcus less than 6× as long as broad	33
–	Scrobal sulcus 7–8× as long as broad	34
33	Flagellomere IX more than 4.5× as long as broad; subantennal distance less than 1.5 MOD long; Brazil	<i>brasiliensis</i> Kimsey
–	Flagellomere IX 4× as long as broad; subantennal distance 1.5 MOD long or longer; Bolivia	<i>polita</i> Kimsey, new species
34	Subantennal distance 2.5 MOD long; postocular distance more than 2 MOD wide; scrobal sulcus 8× as long as broad; Jamaica	<i>ziva</i> Kimsey
–	Subantennal distance 1 MOD long or less; postocular distance less than 2 MOD wide; scrobal sulcus 7× as long as broad	35
35	Eye height less than twice malar space length in side view; postocular distance less than 1 MOD wide; Jamaica	<i>insula</i> Kimsey
–	Eye height twice malar space length in side view; postocular distance more than 1 MOD wide; Puerto Rico	<i>paracubana</i> Kimsey, new species
36	Subantennal distance less than 1 MOD long; postocular distance 1 MOD wide or less; Brazil	<i>antennalis</i> Kimsey
–	Subantennal distance 1 MOD long or longer; postocular distance 1.3–1.6 MOD wide	37
37	Flagellomere II less than 3× as long as broad; eye height twice malar space length or more	38
–	Flagellomere II more than 3× as long as broad; eye height less than twice malar space length	39

- 38 Scrobal sulcus 6× as long as broad; malar space less than 2.5 MOD long in front view;
 Puerto Rico *puertoricana* Kimsey
 – Scrobal sulcus 7× as long as broad; malar space more than 3 MOD long in front view;
 Jamaica *jamaicensis* Kimsey
 39 Flagellomere II 4× as long as broad; Dominican Republic .. *acuta* Kimsey, **new species**
 – Flagellomere II less than 3.5× as long as broad; Cuba *cubana* Kimsey

Adelphe acuta Kimsey, **new species**

Figs 2, 14, 23, 35

Male.—Body length 2–3 mm. *Head* (Fig. 2): face highly polished, sparsely punctate, punctures small, 4–6 PD apart; scapal basin smooth, polished; mandible with two apical teeth; subantennal space 1 MOD long; malar space 3 MOD long; eye height 1.5× malar space length; postocular distance 1.2–1.4 MOD wide, 0.8 MOD wide between occipital carina and posterior eye margin, occipital carina 0.2 MOD (Fig. 23); flagellomere I length 4.3× breadth; flagellomere II 4.0× as long as broad; occipital carina narrow, weakly punctate not separate. *Thorax*: pronotal carina well-developed laterally; mesopleuron highly polished, punctures small, 2–5 PD apart, posteriorly impunctate, scrobal sulcus 9× as long as broad (Fig. 35); metanotal disk 1.7× as broad as long; propodeal dorso-medial enclosure with coarse transverse cross-ridges, dorsolateral enclosure cross-ridged, posterolateral enclosure rugose, lateral tooth long, acute (Fig. 35). *Pubescence*: body with sparse erect pale setae; ocular setulae dense, 0.3 MOD long; flagellar setae 0.7 MOD long. *Color*: head and thorax black, thoracic dorsum with metallic tints; metasoma dark brown; legs yellowish brown; scape and pedicel brown, slightly paler than flagellum, flagellum dark brown.

Female.—Body length 3.0–3.5 mm; same as ♂, except flagellomere I length 2.3× breadth; flagellomere II length 0.8× breadth (Fig. 14); scapal basin highly polished, frons, vertex, pronotum and mesopleuron with large nearly contiguous punctures; head and thoracic dorsum with

bronze tints, with erect black setae; flagellomere II slightly broader than long; antenna reddish brown, scape slightly paler than rest of antenna; femora reddish brown, rest of legs paler, yellowish brown.

Type material.—Holotype ♂: DOMINICAN REPUBLIC: La Vega, Cienaga, Parque Nacional A. Bermudez, 19 July–2 Aug. 1995, S & J Peck, flight intercept trap (CNC); Paratypes: 2 ♂♂, same data as holotype.

Additional specimens: 1 ♀: same data as holotype; 1 ♀: Parque Nacional del Este, 18°21N 68°49W, 16–17 Nov. 2005, L. Masner, yellow pan trap (CNC, BME).

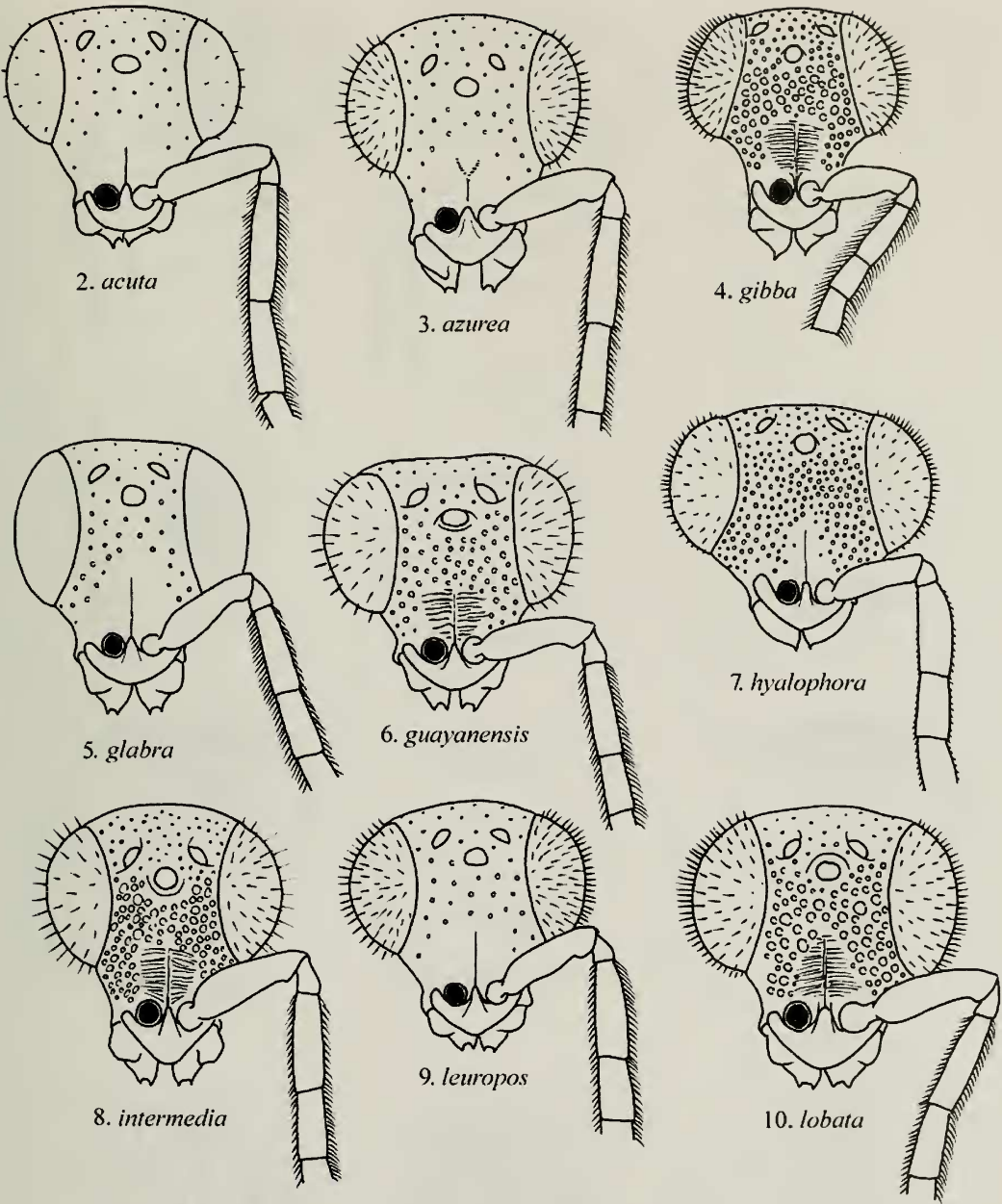
Etymology.—The name, *acuta*, refers to the long, sharp propodeal tooth.

Discussion.—*Adelphe acuta* appears to be most closely related to the group of species, including *antennalis*, *puertoricana*, *jamaicensis* and *cubana*, which have a smooth scapal basin, two mandibular teeth, flagellomere I 4× or more as long as broad, relatively narrow scrobal sulcus, and malar space 2–3 MOD long. It shares the acute, almost tooth-like propodeal tooth with *antennalis*. However, *acuta* can be distinguished from these species by the shorter flagellomere I (4× as long as broad), flagellomere II more than 3× as long as broad and the eye height less than twice as long as the malar space.

Adelphe azurea Kimsey, **new species**

Figs 3, 24, 37

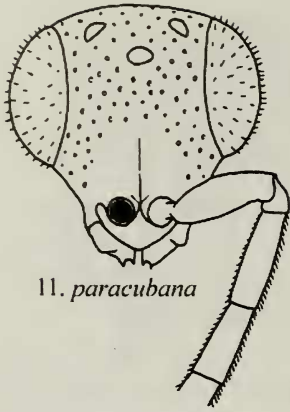
Male.—Body length 3.5–4.5 mm. *Head* (Fig. 3): face smooth, with sparse punctures, 2–4 PD apart; scapal basin smooth, without cross-ridges; mandible with two apical teeth; subantennal space 1.3 MOD long; malar space 3.0 MOD long; eye



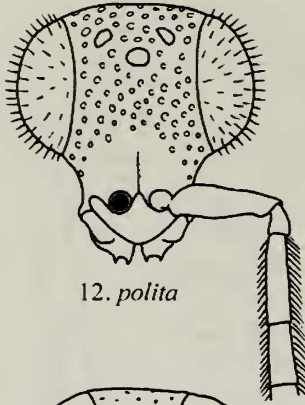
Figs 2–10. Front view of male face.

height $1.6\times$ malar space length; face appearing prognathous in dorsal view (Fig. 24); postocular distance 1.6 MOD wide between occipital carina and posterior eye margin, occipital carina, faintly punctate, not septate; 0.2 MOD wide (Fig. 24); flagellomere I $4\times$ as long as

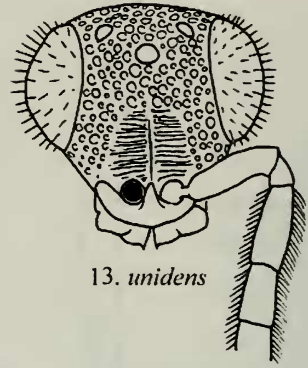
broad; flagellomere II $3.0\text{--}3.2\times$ as long as broad. *Thorax*: pronotal carina obsolescent laterally; mesopleuron polished, largely impunctate, scrobal sulcus $4.0\text{--}4.2\times$ as long as broad; metanotal disk twice as broad as long; propodeal dorsomedial enclosure with coarse transverse cross-ridges, dorso-



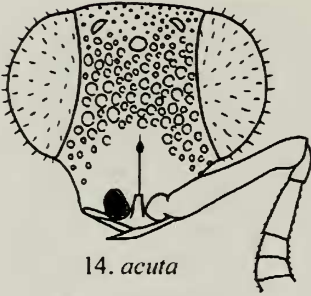
11. *paracubana*



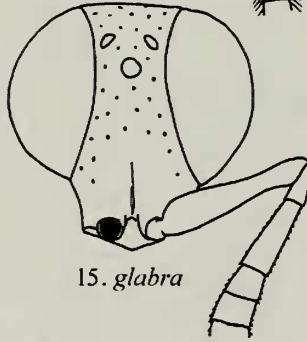
12. *polita*



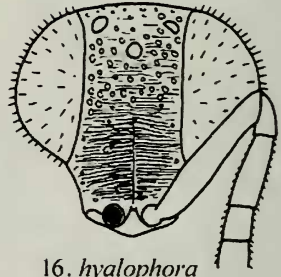
13. *unidens*



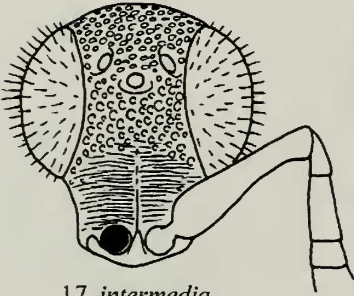
14. *acuta*



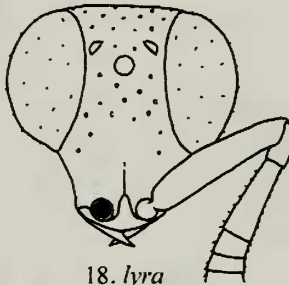
15. *glabra*



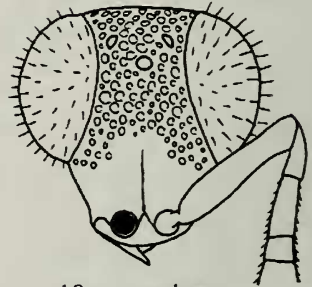
16. *hyalophora*



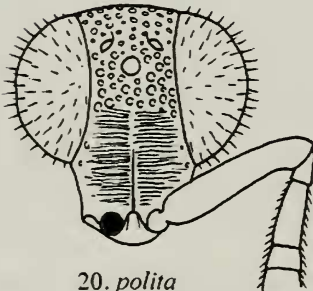
17. *intermedia*



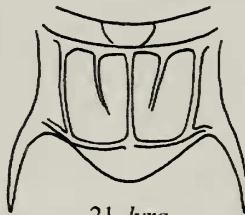
18. *lyra*



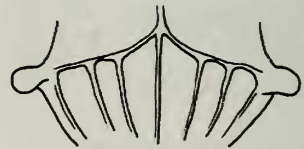
19. *paracubana*



20. *polita*

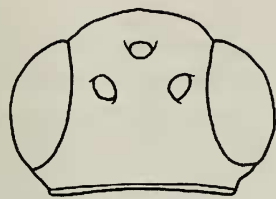


21. *lyra*

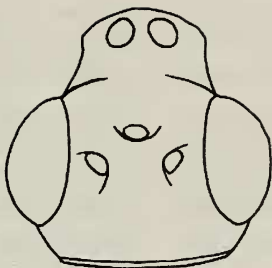


22. *polita*

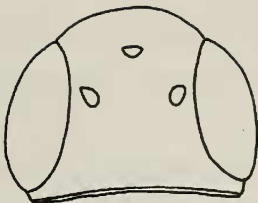
Figs 11–13. Front view of male face. Figs 14–20. Front view of female face. Fig. 21. Dorsal view of female propodeum. Fig. 22. Posterior view of male propodeum.



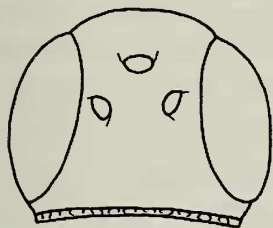
23. *acuta*



24. *azurea*



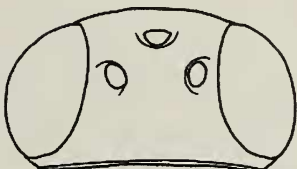
25. *gibba*



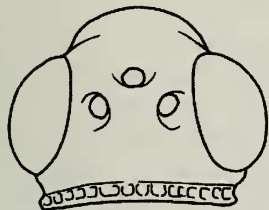
26. *glabra*



27. *guayansis*



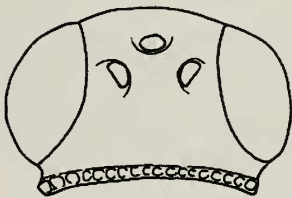
28. *hyalophora*



29. *intermedia*



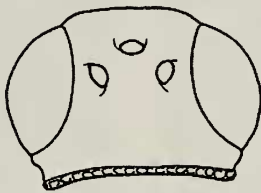
30. *leuopos*



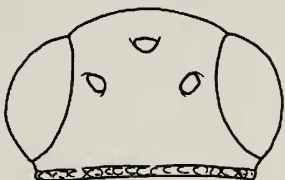
31. *lobata*



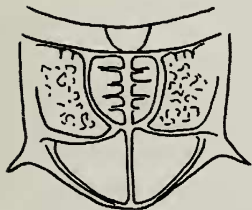
32. *paracubana*



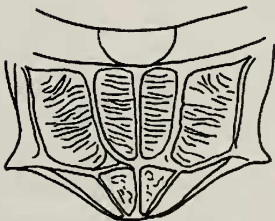
33. *polita*



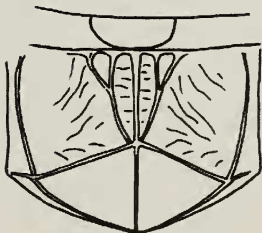
34. *unidens*



35. *acuta*



36. *guayanensis*



37. *azurea*

Figs 23–34. Dorsal view of male head. Figs 35–37. Dorsal view of male propodeum.

lateral enclosure cross-ridged, posterolateral enclosure rugose, lateral angle low, obtuse. *Pubescence*: body with dense erect dark brown setae; ocular setulae dense, 0.6 MOD long; flagellar setae 0.7 MOD long. *Color*: head and thorax black, dorsum with metallic blue highlights; metasoma reddish brown; legs yellowish brown; scape and pedicel red, flagellum dark brown.

Female.—Unknown.

Type material.—Holotype ♂: COSTA RICA: Cartago, La Cangreja, July 1991, Hanson & Godoy (BME); Paratypes: 9 ♂♂ (BME, MUCR): 3 ♂♂, same data as holotype; 2 ♂♂, same data as holotype except Mar.–May 1992; 1 ♂, San José, Zurquí de Moravia, Mar.–April 1993, P. Hanson; 1 ♂, Zurquí de Moravia, July 1991, P. Hanson; Cartago, Cerro de la Muerte, Villa Mills, July–Sept. 1990, P. Hanson; 1 ♂, PANAMA: Chiriquí, La Fortuna, 25 May–9 June 1995, Ashe & Brooks, flight intercept trap.

Etymology.—The name refers to the blue tints on the head and thorax.

Discussion.—This is one of seven species recorded from Costa Rica. It shares the majority of features with *paralaevis*, including the smooth scapal basin, flagellomere I 3.5–3.7× as long as broad, and scrobal sulcus 4–5× as long as broad. The two species differ in size, with *azurea* much larger, with a longer flagellomere II (2.5× versus 3.0× in *paralaevis*), longer subantennal distance (1.7 MOD versus 1.5 MOD), and the smooth medial propodeal enclosures (rugose or cross-ridged in *paralaevis*). Male *azurea* are also colored with strong blue tints on the head and thorax.

Adelphe gibba Kimsey, **new species**
Figs 4, 25

Male.—Body length 3 mm. *Head* (Fig. 4): face with large, nearly contiguous punctures; scapal basin coarsely cross-ridged; mandible with one apical tooth; subantennal space 1.2 MOD long; malar space 4.0 MOD long; eye height 1.6× malar space length; postocular distance 0.5 MOD wide

between outer margin of occipital carina and posterior eye margin, occipital carina 0.1 MOD wide (Fig. 25); flagellomere I 2.5–2.7× as long as broad; flagellomere II 2.0× as long as broad. *Thorax*: cylindrical, pronotum laterally impressed, strongly convex dorsally; pronotal carina well-developed laterally; mesopleuron with large, nearly contiguous punctures, scrobal sulcus 5.5–6.0× as long as broad; metanotal disk twice as broad as long; propodeal dorsomedial enclosure with coarse transverse cross-ridges, dorsolateral enclosure cross-ridged, posterolateral enclosure rugose, lateral tooth strongly protruding, apex broadly rounded. *Pubescence*: body with dense erect dark brown setae; ocular setulae dense, 0.8 MOD long; flagellar setae 0.8 long. *Color*: head and thoracic dorsum black, with faint bluish tints, particularly on head; metasoma and legs dark brown; antenna dark brown, scape slightly paler.

Female.—Body length 3.0–3.5 mm; same as ♂, except flagellomere I length twice breadth; flagellomere II length equal to breadth; scape and pedicel yellow, flagellomeres I–II pale yellow to whitish, flagellomeres III–XI dark brown; metasoma dark brown; legs pale yellowish brown.

Type material.—Holotype ♂: ECUADOR: Sucumbios, Sacha Lodge, 0°05S 76.05W, 290 m, 13–23 June 1994, P. Hibbs, Malaise trap (LACM). Paratypes 42 ♂♂, 13 ♀♀ (LACM, BME, CNC); 3 ♂♂, 5 ♀♀, same locality and collector as holotype: 1 ♂, 12–22 Feb. 1994; 1 ♀, 22 Feb.–4 Mar. 1994; 4–14 Mar. 1994; 1 ♂, 2 ♀, 14–24 Mar. 1994; 1 ♂, 4–14 April 1994; 1 ♀, 13–23 April 1994; 2 ♂♂, 1 ♀, 23 April–4 May 1994; 3 ♂♂, 1 ♀, 14–24 May 1994; 2 ♂, 3–13 April 1994; 1 ♂, 13–20 April 1994; 3 ♂♂, 1 ♀, 13–23 April 1994; 3 ♂♂, 23 June–3 July 1994; 1 ♂, 24 June–3 July 1994; 8 ♂♂, 3–13 July 1994; 2 ♂♂, 2 ♀♀, 13–25 July 1994; 5 ♂♂, 25 July–3 Aug. 1994; 3 ♂♂, 1 ♀, 3–16 Aug. 1994; 2 ♂♂, 1 ♀, 27 Aug.–10 Sept. 1994; 1 ♂, 12–21 Oct. 1994; 1 ♀, 1 ♂, 31 Oct.–10 Nov. 1994, Napo, Yasuni Research Station, 0°40.05S 78°24W, June–July 1999, C. Carlton, FIT.

Etymology.—The name derives from the strongly bulging frons in this species.

Discussion.—*Adelphe gibba* is one of two species, including *cylindrica*, with a compressed, somewhat cylindrical body. The pronotum is strongly convex dorsally, appearing somewhat impressed sublaterally. The head is unusually narrow across the lower face, with the sides below the eyes nearly parallel in front view. In side view the frons is strongly convex, a feature not seen in any other described species. This is one of four species, including *paradoxa*, *hyalophora* and *unidens*, where the male mandible has a single apical tooth. *A. minuta* was originally described as having a single mandibular tooth but subsequent examination with better optics has revealed the presence of a second tiny tooth. Additional diagnostic male features of *gibba* include the cross-ridged scapal basin, scrobal sulcus 5–6× as long as broad, large coarse punctuation on the face and mesopleuron, eye height 1.6× as long as malar space length. Females have whitish basal flagellomeres.

There are only two species of *Adelphe* described from Ecuador, *gibba* and *longifacies*. However, there are quite likely to be more. Additional collecting, particularly with Malaise traps and yellow bowls, will undoubtedly reveal new species.

Adelphe glabra Kimsey, **new species**
Figs 5, 15, 26

Male.—Body length 3 mm. *Head* (Fig. 5): face highly polished, sparsely punctate, punctures shallow, 1–2 PD apart; scapal basin smooth, polished; mandible with two apical teeth; subantennal space 1.3 MOD long; malar space 3.0 MOD long; eye height 2.5× malar space length; postocular distance 1 MOD wide, occipital carina 0.4 MOD wide (Fig. 26); flagellomere I 3.0–3.5× as long as broad; flagellomere II 2.2–2.4× as long as broad; occipital carina narrow, weakly punctate not septate. *Thorax*: pronotal carina well-developed later-

ally; mesopleuron highly polished, punctures small, 2–3PD apart, posterior part nearly impunctate, scrobal sulcus 3.5× as long as broad; metanotal disk 3× as broad as long; propodeal dorsomedial enclosure with coarse transverse cross-ridges, dorso-lateral enclosure cross-ridged, posterolateral enclosure rugose, lateral tooth short, apically acute. *Pubescence*: body with sparse erect black setae; ocular setulae minute, less than 0.1 MOD long or absent; flagellar setae 0.5 long. *Color*: head and thorax black, thoracic dorsum with metallic tints; metasoma dark brown; legs yellow; antenna brown, with slightly lighter colored scape.

Female.—Body length 3.0–3.5 mm; same as ♂, except flagellomere I length 1.6× breadth; flagellomere II 0.6× (Fig. 15); scapal basin highly polished, frons, vertex, pronotum and mesopleuron nearly impunctate; head and thorax black, with erect black setae; metasoma brown; antenna brown with, scape, pedicel and flagellomere I paler, yellowish brown; legs brownish yellow.

Type material.—Holotype ♂: FRENCH GUIANA: Saul, 7 km s Les Eaux Claires, 170 m, 30 May–4 June 1997, J. Ashe & R. Brooks, FIT (CNC). Paratypes: 6 ♂♂, 2 ♀♀; 4 ♂♂ (CNC, BME); 1 ♀, same data as holotype; 1 ♂, 240 m, 18 km sse Roura, 4°46.61N 52°13.41W, 22 May–10 June 1997, J. Ashe & R. Brooks, FIT; 1 ♂, 8.4 km sse Roura, 4°40.59N 52°17.47W, 22–24 May 1997, J. Ashe & R. Brooks, MT; 1 ♀, Saul, 7 km n and 3 km e Les Eaux Claires, Mt. Fumee, 490 m, 1–8 June 1997, J. Ashe & R. Brooks, FIT.

Etymology.—The name, *glabra*, refers to the nearly hairless eyes (Latin, f.).

Discussion.—The most distinctive feature of this species is the essentially hairless eyes in both sexes. The only other species where this is seen is the Brazilian species, *calvata*. It can be distinguished from *calvata* by the wider scrobal sulcus (3.5× versus 7× in *calvata*), and broader postocular distance (1 MOD wide versus 0.6 MOD in *calvata*). In other features, including flagel-

lomere I less than $3.5\times$ as long as broad, scapal basin smooth, scrobal sulcus $3\text{--}5\times$ as long as broad and mandible with two apical teeth, *glabra* is closest to *leuropos* and *hansoni*.

Adelphe guayanensis Kimsey, **new species**
Figs 6, 27, 36

Male.—Body length 4.0–4.5 mm. *Head* (Fig. 6): face coarsely punctate, punctures 0.5–1.0 PD apart; scapal basin cross-ridged; mandible with two apical teeth; subantennal space 1.0–1.3 MOD long; malar space 2.5 MOD long; eye height $2.6\times$ malar space length; postocular distance 1.1 MOD wide, 0.3 MOD wide between occipital carina and posterior eye margin, occipital carina broad, 0.5 MOD wide, traversed by septa (Fig. 27); flagellomere I $3.5\times$ as long as broad; flagellomere II $2.3\times$ as long as broad. *Thorax*: pronotal carina well-developed laterally; mesopleuron smooth, with punctures small, 0.5–1.0 PD apart anteriorly, becoming nearly impunctate posteriorly, scrobal sulcus $4.5\times$ as long as broad; metanotal disk twice as broad as long; propodeal dorsomedial enclosure with coarse transverse cross-ridges, dorsolateral enclosure cross-ridged, posterolateral enclosure rugose, lateral tooth large, broadly rounded apically (Fig. 36). *Pubescence*: body with erect dark brown setae; ocular setulae dense, 0.5 MOD long; flagellar setae 0.5 long. *Color*: head and thorax black, dorsum with bronze tints; antenna brown; legs pale yellowish brown; metasoma dark brown.

Female.—Unknown.

Type material.—Holotype ♂: GUYANA, Region 8, Iwokrama Forest Res., $4^{\circ}40.19'N$ $58^{\circ}41.04'W$, May–June 2001, R. W. Brooks & Z. Hain, flight intercept trap (CNC). Paratypes: 4 ♂♂; 2 ♂♂ (CNC, BME): same data as holotype; FRENCH GUYANA: 1 ♂: Les Eaux Claires, 7 km s, Saul, 30 May–4 June 1997, Ashe & Brooks, flight intercept trap; 1 ♂: Les Eaux Claires, 7 km s Mt. Fumes, 4–8 June 1997, Ashe & Brooks, flight intercept trap;

Etymology.—The name refers to the collection localities in the Guayanas.

Discussion.—This is one of twelve species of *Adelphe* with a cross-ridged scapal basin and 2-toothed mandible in the male. It most closely resembles *lobata*, as both have a relatively short flagellomere I ($3.5\times$ as long as broad or shorter), scrobal sulcus $4.5\text{--}5.0\times$ as long as broad and malar space 2–3 MOD long. *A. lobata* has a large protruding, apically rounded propodeal angle, whereas it is low and obtuse in *guayanensis*. *A. guayanensis* can be distinguished from *lobata* by the shorter subantennal distance (1 MOD versus 2 MOD long), flagellomere II $2.3\times$ as long as broad (versus $2.8\times$ as long as broad), malar space 2 MOD long (longer in *lobata*), and flagellomere XI $4.5\times$ as long as broad versus $4.0\times$.

Adelphe hyalophora Kimsey, **new species**
Figs 7, 16, 28

Male.—Body length 3 mm. *Head* (Fig. 7): face with nearly contiguous, medium punctures; scapal basin coarsely cross-ridged; mandible with one apical tooth; subantennal space 1.2 MOD long; malar space 4.0 MOD long; eye height $1.9\times$ malar space length; postocular distance 1 MOD wide, 0.6 MOD wide between occipital carina and posterior eye margin, occipital carina narrow, 0.1 MOD wide, weakly punctate, not septate (Fig. 28); flagellomere I $3.0\times$ as long as broad; flagellomere II twice as long as broad. *Thorax*: pronotal lateral carina well-developed; mesopleuron polished, punctures small, shallow, 1–4 PD apart, scrobal sulcus narrow, parallel-sided, $8.5\times$ as long as broad; metanotal disk $1.8\times$ as broad as long; propodeal dorsomedial and dorsolateral enclosures transversely rugose, posterolateral enclosure irregularly rugose, lateral tooth obtuse. *Pubescence*: body with erect whitish setae; ocular setulae sparse, 0.5 MOD long; flagellar setae short, less than 0.2 MOD long. *Color*: head and thorax

black; antenna dark brown, scape somewhat paler brown.

Female.—Body length 2–3 mm. same as ♂, except flagellomere I length $2.8\times$ breadth; flagellomere II length $1.2\times$ breadth (Fig. 16); scape, pedicel yellowish brown, flagellomeres dark brown; legs yellow.

Etymology.—This species is found in low elevation forest in Puerto Rico. The name is Latin for forest (*hyalos*) lover (*phora*).

Type material.—Holotype ♂: USA: Puerto Rico, Bosque Estatal de Guánica, $17^{\circ}96'N$ $66^{\circ}84'W$, 15 ft., 19–25 Sept. 1998 (LACM). Paratypes: 4 ♂♂, 2 ♀♀ (BME, LACM), same data as holotype.

Discussion.—This is the fourth species of *Adelph* described from Puerto Rico, including *hyalophora*, *masneri*, *paracubana* and *puertoricana*. All four are among the smallest bodied *Adelph*, ranging in length from 2–3 mm. *A. hyalophora* can be distinguished from *paracubana* and *puertoricana* by the lack of transverse ridging in the scapal basin. Both *hyalophora* and *masneri* have a smooth, highly polished and sparsely punctate face. *A. hyalophora* can be distinguished from all of these species by the presence of only one apical tooth on the male mandible.

Adelph *intermedia* Kimsey, new species
Figs 8, 17, 29

Male.—Body length 3.5–5.0 mm. *Head* (Fig. 8): face coarsely punctate, punctures contiguous; scapal basin cross-ridged; mandible with two apical teeth; subantennal space 1.5–1.7 MOD long; malar space 3.0 MOD long; eye height $1.5\times$ malar space length; postocular distance 1.4 MOD, occipital carina broad, 0.57 MOD wide, traversed by septa (Fig. 29); flagellomere I $3.5\times$ as long as broad; flagellomere II $2.5\times$ as long as broad. *Thorax*: pronotal carina well-developed laterally; mesopleuron smooth, punctures small, 0.5–1.5 PD apart, scrobal sulcus $4.0\text{--}4.3\times$ as long as broad; metanotal disk twice as broad as long;

propodeal dorsomedial enclosure with coarse transverse cross-ridges, dorsolateral enclosure cross-ridged, posterolateral enclosure rugose, lateral tooth low, obtuse. *Pubescence*: body with extensive erect dark brown to black setae; ocular setulae dense, 0.7 MOD long; flagellar setae 0.5 long. *Color*: head and thorax black, dorsum with metallic yellowish green highlights; antenna dark brown.

Female.—Body length 3.0–3.5 mm; same as ♂, except flagellomere I length twice breadth; flagellomere II length $0.6\times$ breadth (Fig. 17); scapal basin densely cross-ridged; frons, vertex, pronotum and mesopleuron anteriorly, with dense, small punctures, punctures 0.5 PD apart; head and thorax black, dorsum with faint metallic yellow tints, with erect black setae; antenna brown, scape, pedicel and flagellomere I slightly paler than rest; legs and metasoma brown.

Type material.—Holotype ♂, COSTA RICA: San José, Tunel, 9.5 km e, Parque Nacional Braulio Carillo, July–Nov. 1990, P. Hanson (BME). Paratypes: 12 ♂♂ (BME, MUCR): 1 ♂, same data as holotype except March–April 1990; 3 ♂♂, San José, Zurquí de Moravia, Aug. 1990, P. Hanson; 1 ♂, Heredia, $10^{\circ}17'N$, $84^{\circ}10'W$, 30/v/1973, J. Helava; 1 ♂, Cartago, La Cengreja, July 1991, Hanson & Godoy; 1 ♂, Guanacaste, Est. Mengo, sw Volcán Cacao; PANAMA: 1 ♂, El Llano-Cartí Rd., July 1982, B Gill, FIT; 1 ♂, El Llano-Cartí Rd., June 1982, B. Gill, flight intercept trap; 2 ♂♂, Chiriquí, La Fortuna dam, 14 June–16 July 1982, B Gill, FIT.

Additional specimens: 2 ♀♀, PANAMA: Chiriquí, La Fortuna dam, 14 June–16 July 1982, B Gill, FIT; 1 ♀: El Llano-Cartí Rd., July 1982, B Gill, FIT.

Etymology.—The name refers to the intermediate nature of the structural features between this species and the other Costa Rican and Panamanian species, *robusta*, *confusa* and *limonae* that have a cross-ridged scapal basin.

Discussion.—Diagnostic features of male *intermedia* include the cross-ridged scapal

basin, apically bidentate mandible, broad scrobal sulcus ($4\times$ as long as broad), and short eye height relative to the length of the malar space (about $1.5\times$ malar space length). The related species, *robusta*, *confusa* and *limonae*, from the same region of Central America can be distinguished from *intermedia* by the longer malar space and narrower scrobal sulcus. Other distinctive features of *intermedia* include the relatively long subantennal distance (1.6 MOD) and ocular setulae longer than the flagellar setae.

Adelphe leuopos Kimsey, **new species**
Figs 9, 30

Male.—Body length 3 mm. *Head* (Fig. 9): face highly polished, sparsely punctate, punctures shallow, 1–2 PD apart; scapal basin smooth, polished; mandible with two apical teeth; subantennal space 1.5 MOD long; malar space 3 MOD long; eye height $2.3\times$ malar space length; postocular distance 0.9–1.0 MOD wide, occipital carina 0.3 MOD (Fig. 30); flagellomere I $3.0\times$ as long as broad; flagellomere II $2.0\times$ as long as broad; occipital carina narrow, weakly punctate not septate. *Thorax*: pronotal carina well-developed laterally; mesopleuron highly polished, punctures small, 2–3PD apart, posteriorly nearly impunctate, scrobal sulcus $4\times$ as long as broad; metanotal disk twice as broad as long; propodeal dorsomedial enclosure with coarse transverse cross-ridges, dorsolateral enclosure cross-ridged, posterolateral enclosure rugose, lateral tooth short, apically acute. *Pubescence*: body with sparse erect black setae; ocular setulae 0.6 MOD long; flagellar setae 0.6 MOD long. *Color*: head and thorax black, thoracic dorsum black with metallic tints; metasoma dark brown, legs yellow; antenna brown, with paler scape.

Female.—Unknown.

Type material.—Holotype ♂: ECUADOR: Morona, Santiago Mizal, 50 km se Macas, 4–7 Jan. 1993, 300 m, M. & J. Wasbauer

(BME). Paratypes: 5 ♂♂ (LACM, BME, CNC); 2 ♂♂, Napo Prov., Hatun Sacha Biol. Sta. 40 m, 13 June 1994, F. Génier, FIT, lowland rainforest; 3 ♂♂, PERU: Loreto Prov., 220 m, Teniente Lopez, $2^{\circ}36'S$ $76^{\circ}07'W$, July 1993, R. Leschen, FIT.

Etymology.—The name, *leuopos*, refers to the "smooth face" (Greek, feminine).

Discussion.—*A. leuopos* is another of the species with two mandibular teeth, a smooth scapal basin, short broad scrobal sulcus, short flagellomere I ($3\times$ as long as broad) and short flagellomere II (about twice as long as broad). Based on all of these features *leuopos* most closely resembles the Central American species *hansoni*. It can be distinguished from *hansoni* by the longer eye height (twice the malar the space length versus shorter in *hansoni*) and narrower postocular distance (1 MOD versus 2 MOD wide). Among the Ecuadorian species, *lobata*, *gibba*, *longifacies* and *leuopos*, only *longifacies* and *leuopos* have a smooth scapal basin.

Adelphe lobata Kimsey, **new species**
Figs 10, 31

Male.—Body length 2.5–3.5 mm. *Head* (Fig. 10): face coarsely punctate, punctures contiguous; scapal basin cross-ridged; mandible with two apical teeth; subantennal space 2.0 MOD long; malar space 3.0 MOD long; eye height $2.3\times$ malar space length; postocular distance 1.4 MOD wide, occipital carina area broad, 0.5 MOD wide, traversed by septa (Fig. 31); flagellomere I $3.5\times$ as long as broad; flagellomere II 2.6 – $2.8\times$ as long as broad. *Thorax*: pronotal carina well-developed laterally; mesopleuron polished, punctures large, 0.5–1.0 PD apart anteriorly becoming smaller and more widely separated medially, nearly impunctate posteriorly, scrobal sulcus $4\times$ as long as broad; metanotal disk twice as broad as long; propodeal dorsomedial enclosure with coarse transverse cross-ridges, dorsolateral enclosure cross-ridged, posterolateral enclosure finely rugose, lat-

eral tooth large, broadly rounded apically (similar to Fig. 22). *Pubescence*: body with erect dark brown setae; ocular setulae dense, 0.6 MOD long; flagellar setae 0.6 long. *Color*: head and thoracic dorsum black, with strong metallic blue tints; antenna dark brown; legs yellow.

Female.—Unknown

Type material.—Holotype ♂: ECUADOR: Napo, Huahua Sumaco, km 45 on Hollin-Loreto Rd., 22 Dec. 1989, Wasbauer & Real, Malaise trap (BME). Paratypes 9 ♂♂ (BME, CNC); 1 ♂, same data as holotype; 1 ♂, Pichincha, Santo Domingo, Tinalandia, 16 km e, 4 June–25 Jul. 1986, S. & J. Peck, FIT; 3 ♂♂, Napo, Puerto Napo, 21 km e, Jatun Sacha Biol. Sta., 9–13 July 1994, F. Génier, FIT; BRAZIL: 2 ♂♂, Rondonia, Ariquemes, 62 km e Fazenda Rancho Grande, 10°18S, 62°53W, 8–20 Apr. 1997, Rehn & Alexander; 2 ♂♂, Amazonas, Estivao do Equador, Rio Javari, Sept. 1979, M. Alvaranga, Malaise trap.

Etymology.—The species name, *lobata*, refers to the large, blunt propodeal tooth.

Discussion.—Diagnostic features of male *lobata* include the apically bidentate mandible, cross-ridged scapal basin, subantennal distance 2 MOD long, malar space 3 MOD long, flagellomere I 3.5× as long as broad, flagellomere II 2.8× as long as broad and the scrobal sulcus 4× as long as broad. Characteristics that will separate *lobata* from *guayanensis*, the species it most closely resembles, are discussed under *guayanensis*.

Adelphe lyra Kimsey, new species

Figs 18, 21

Male.—Unknown.

Female.—Body length 3.5–5.0 mm. *Head* (Fig. 18): face smooth, nearly impunctate, punctures small, 4–6 PD apart; scapal basin smooth; subantennal space MOD long; malar space 3.6 MOD long; flagellomere I 2.6× as long as broad; flagellomere II 0.7× as long as broad. *Thorax*: pronotal carina well-developed laterally; mesopleuron pol-

ished, punctures 3–6 PD apart, scrobal sulcus 4.5× as long as broad; metanotal disk twice as broad as long; propodeal dorsomedial, dorsolateral and posterolateral enclosures smooth, polished, lateral tooth elongate, acute, 5× as long as broad at the base (Fig. 21). *Pubescence*: body with erect brown setae; ocular setulae minute, less than 0.1 MOD long; flagellar setae 0.3 MOD long. *Color*: head and thorax black; metasoma and legs reddish brown; scape, pedicel and flagellomeres I–II yellowish brown, flagellomeres III–X brown.

Type material.—Holotype ♀: VENEZUELA: Aragua, Rancho Grande, 3–10 Aug. 1987, C. Bordon & S. Peck (CNC). Paratypes: 2 ♀♀ (BME, CNC): 1 ♀, 2 Jun. 1987, C. Bordon; 1 ♀, H. Pifier National Park, 14 May 1998, S. Ashe, flight intercept trap.

Etymology.—*Adelphe lyra* is named for the unusually long propodeal teeth

Discussion.—There is only one other species recorded from Venezuela, *meridae*, which is only known from males. It is possible that *lyra* is the female of *meridae*. However, in the majority of species where both sexes are known, males and females share similar modifications of the propodeal angle and scrobal sulcus. These features differ considerably between the two species. Venezuela has not been adequately sampled, so it would not be surprising if there are multiple species of *Adelphe*. However, the unusually long propodeal teeth in *lyra* differ from all other *Adelphe* females. In addition, *lyra* is distinguished by the lack of whitish antennomeres, the minute ocular setulae and smooth, polished propodeal enclosures.

Adelphe paracubana Kimsey, new species

Figs 11, 19, 32

Male.—Body length 2.0–2.5 mm. *Head* (Fig. 11): face with small, scattered punctures, punctures 1–3 PD apart; scapal basin smooth, polished; mandible with two apical teeth; subantennal space 1.0 MOD

long; malar space 2.5 MOD long; eye height twice malar space length; postocular distance 1.6 MOD wide between occipital carina and posterior eye margin, occipital carina area 0.1 MOD wide, carina septate (Fig. 32); flagellomere I $3.5\times$ as long as broad; flagellomere II $2.5\times$ as long as broad. *Thorax*: pronotal carina complete laterally; mesopleuron highly polished, with small, sparse punctures, 1–4 PD apart or more, scrobal sulcus narrow, parallel-sided, $7\times$ as long as broad; metanotal disk $3\times$ as broad as long; propodeal dorsomedial and dorsolateral enclosures smooth, with faint rugae, posterolateral enclosure smooth, lateral tooth obtuse, with translucent apex. *Pubescence*: body with erect pale setae; ocular setulae sparse, 0.4 MOD long; flagellar setae 0.4 MOD long. *Color*: head and thorax black; metasoma dark brown; scape yellow; pedicel and flagellum brown.

Female.—Body length 3.0 mm; same as ♂, except flagellomere I length $2.8\times$ breadth; flagellomere II length $0.6\times$ breadth (Fig. 19); scapal basin densely cross-ridged; frons, vertex, pronotum with dense, contiguous punctures dorsally; mesopleuron sparsely punctate anteriorly, impunctate posteriorly; head and thorax black, dorsum with faint yellowish tints, with erect black setae; antenna and legs brown.

Etymology.—The name derives from the superficial resemblance of this species to *cubana*.

Type material.—Holotype ♂: USA: Puerto Rico, Bosque Estatal de Guánica, $17^{\circ}96'11''\text{N}$ $66^{\circ}84'7''\text{W}$, 15 ft., 19–25 Sept. 1998 (LACM). Paratypes, 18 ♂♂ (LACM, BME): 5 ♂♂, same data as holotype; 1 ♂, Guánica, $17^{\circ}84'\text{N}$ $66^{\circ}86'\text{W}$, Sept. 1998, MT, R. Snelling; 5 ♂♂, DOMINICAN REPUBLIC: La Vega Prov., 10 mi ne Jarabacoa, Hotel Montana forest, 16 June–4 July 1995, S. & J. Peck, FIT, #95-30; 2 ♂♂, La Vega Prov., PN A. Bermudez, Cienaga, 19 July–2 Aug. 1995, 1010 m, tropical evergreen forest, FIT, S & J. Peck, 95-30; 1 ♂, La Vega Prov., 12 km ne Jarabacoa, 550 m, 1–17 Sept. 1988, flight intercept trap, M.A. Ivie, T.K. Philips,

J. Jonson; 2 ♂♂, La Vega Prov., PN A. Bermudez, near La Ciénaga, 1000 m, FIT, 12–22 Jan. 1989, L. Masner; Parque Nacional del Este, $18^{\circ}21'\text{N}$ $68^{\circ}49'\text{W}$, 16–17 Nov. 2005, L. Masner, YPT; VIRGIN IS.: 1 ♂, St. John Est. Caneel Bay, Caneel Hill, 240 ft., 17 Dec.–2 Jan. 1992, VIBFP colrs., flight intercept trap #6.

Additional specimens: 16 ♀♀: DOMINICAN REPUBLIC: La Vega Prov., 10 mi ne Jarabacoa, Hotel Montana forest, 18 July–4 Aug. 1995, 550 ft, S. & J. Peck, FIT, 95–30; Duarte, 15 km ne San Francisco de Macoris, 800 m, Loma Quita Espuela, MT, May–July 1991; Duarte, 20 km ne San Francisco de Macoris, 800 m, Loma Quita Espuela, MT, 19–26 Mar. 1991; Prov. La Vega, 12 km ne Jarabacoa, 550 m, 1–17 Sept. 1988, flight intercept trap, Ivie, Philips & Johnson; Pedernales, 4 km w Oviedo, 10 m, NP Jaragua, 28 Nov.–4 Dec. 1991, FIT, L. Masner & S. B. Peck; Punta Cana Reserva, $18^{\circ}30.40'\text{N}$ $68^{\circ}22.38'\text{W}$, 11–14 Nov. 2005, forest, L. Masner, YPT.

Discussion.—The ten Caribbean species, (*cubana*, *dominicana*, *insula*, *jamaicensis*, *acuta*, *nesos*, *minuta*, *paracubana*, and *puertoricana*) all have a smooth, unsculptured scapal basin and bidentate male mandibles. *A. paracubana* most closely resembles *insula*. It can be distinguished from *insula* by the larger eye (twice the length of the malar space), broader postocular distance (more than 1 MOD wide), somewhat shorter malar space (2.5 MOD versus 2.9 MOD long) and generally smaller body length (2 mm, versus 3.5–4.0 in *insula*).

Female specimens listed under “Additional specimens” are not treated as paratypes for this species because although they were collected at the same time and place as the males they do not share enough characteristics to be certain that they are conspecific. There are multiple species known from males from the Dominican Republic and Puerto Rico.

Adelphe polita Kimsey, new species
Figs 12, 20, 33

Male.—Body length 3 mm. *Head* (Fig. 12): face polished, sparsely punctate, punctures

shallow, 1–2 PD apart; scapal basin smooth, with some wrinkles laterally; mandible with two apical teeth; subantennal space 1.6 MOD long; malar space 2.6 MOD long; eye height $2.7\times$ malar space length; postocular distance 1.4 MOD wide, occipital carina area 0.4 MOD weakly punctate not septate (Fig. 33); flagellomere I $3.8\times$ as long as broad; flagellomere II $2.3\times$ as long as broad *Thorax*: pronotal carina well-developed laterally; mesopleuron highly polished, punctures small, 2–3 PD apart, posteriorly nearly impunctate, scrobal sulcus $5.4\times$ as long as broad; metanotal disk $2.5\times$ as broad as long; propodeal dorsomedial enclosure with coarse transverse cross-ridges, dorsolateral enclosure cross-ridged, posterolateral enclosure rugose, lateral tooth short, apically acute. *Pubescence*: body with sparse erect dark brown setae; ocular setulae 0.6 MOD long; flagellar setae 0.6 MOD long. *Color*: head and thorax black, dorsum with metallic tints; metasoma dark brown, legs yellow; antenna brown, with slightly lighter colored scape.

Female.—Body length 3.0–3.5 mm; same as ♂, except flagellomere I length twice breadth; flagellomere II length 0.6 breadth (Fig. 20); scapal basin densely cross-ridged; frons, vertex, pronotum and mesopleuron with dense punctures, 0.5 PD apart, becoming impunctate posteriorly; head and thorax black, dorsum with faint metallic yellow tints, with erect black setae; antenna dark brown, metasoma reddish brown; legs yellowish brown; wing membrane brown-tinted.

Type material.—Holotype ♂: BOLIVIA: Santa Cruz, 5 km sse Buena Vista, 440 m, $17^{\circ}29.95'S$ $63^{\circ}39.129'W$, 15–24 Dec. 2003, S. & J. Peck, FIT (CNC). Paratypes: 19 ♂♂, 7 ♀♀ (BME, CNC); 17 ♂♂, 5 ♀♀, same data as holotype; 1 ♂, 2 ♀♀, Cochabamba, Est. Biol. Valle Sajta, 300 m, $17^{\circ}06.52'S$ $64^{\circ}47.87'W$, 7–9 Feb. 1999, R.S. Hanley & F. Génier, FIT; 1 ♂, $17^{\circ}08.52'S$ $65^{\circ}46.57'W$, 6–8 Feb. 1999, F., FIT, cloud forest.

Etymology.—The name, *polita*, refers to the polished appearance of the face and mesopleuron (Latin, feminine).

Discussion.—This is the only species so far described or recorded from Bolivia. The most distinctive features of *polita* are the broad, ovoid scrobal sulcus in both sexes, and male with flagellomere I $4\times$ as long as broad, face smooth and polished and a bidentate mandible. The entire male body is smooth and largely impunctate. Male *polita* most closely resemble the Brazilian species *brasiliensis* and Jamaican species *insula*. It can be distinguished from these species by the longer flagellomere I, longer subantennal distance and the eye height less than twice the malar space length.

Adelphe unidens Kimsey, new species

Figs 13, 34

Male.—Body length 3.0 mm. *Head* (Fig. 13): face with nearly contiguous, medium punctures; scapal basin coarsely cross-ridged; mandible with one apical tooth; subantennal space 1.2 MOD long; malar space 3.0 MOD long; eye height $1.5\times$ malar space length; postocular distance 0.8 MOD wide, occipital carina area 0.4 MOD wide, punctate, not septate (Fig. 34); flagellomere I $2.5\times$ as long as broad; flagellomere II $1.2\times$ as long as broad. *Thorax*: pronotal lateral carina well-developed; mesopleuron coarsely punctate anteriorly, punctures large, 0.5 PD apart, becoming impunctate posteriorly, scrobal sulcus parallel-sided, $6.0\times$ as long as broad; metanotal disk $1.7\times$ as broad as long; propodeal dorsomedial and dorsolateral enclosures transversely rugose, posterolateral enclosure irregularly rugose, lateral tooth obtuse. *Pubescence*: body with black setae; ocular setulae 0.7 MOD long; flagellar setae 0.1 MOD long. *Color*: head and thorax black; legs dark brown, with pale coxal-femoral and femoral-tibial joints; antenna black.

Female.—Unknown.

Etymology.—The name, *unidens*, refers to the single mandibular tooth.

Type material.—Holotype ♂: COSTA RICA: San Jose, P. N. Braulio Carrillo, 8 km ne Tunel, 1100 m, 15/v/1989, P.

Hanson (BME). Paratype: 1 ♂, Limón, 4 km ne Bribri, 50 m, ix–xi/1989, P. Hanson (MUCR).

Discussion.—Among the four species (*unidens*, *paradoxa*, *hyalophora* and *gibba*) that have a cross-ridged scapal basin and single, apical mandibular tooth in the male, *unidens* very closely resembles the Brazilian *paradoxa*. *Adelphe unidens* is the only Central American representative of the group. It can be distinguished from *paradoxa* by the longer subantennal distance (more than 1 MOD versus 1 MOD long), shorter flagellomere I (less than 2.8× as long as broad) and shorter eye height relative to the length of the malar space (only 1.5× malar space length versus longer) and flagellomere IX (4× as long as broad versus 3×).

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LITERATURE CITED

- Kimsey, L. S. 1986. New species of the American genus *Adelphe* Mocsáry (Hymenoptera, Chrysididae). *Insecta Mundi* 1: 197–206.
- . 1993. New neotropical amesegine wasps (Hymenoptera: Chrysididae). *Pan-Pacific Entomologist* 69: 205–212.
- and R. M. Bohart. 1991 (1990). *The chrysidid wasps of the world*. Oxford University Press, Oxford. ix + 652 pp.
- Krombein, K. V. 1957. A generic review of the Ameseginae, a group of phasmatid egg parasites, and notes on the Adelphinae. *Transactions of the American Entomological Society* 82: 147–215.